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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/573727
Filing Date: September 10, 2004
Appellant(s): STECKNER ET AL.

KONINKLIJKE PHILIPS ELECTRONICS
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 08/23/2010 appealing from the Office action mailed 01/22/2010.

(1) Real Party in interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,501,981	SCHWEIKARD	12-2002
6,374,132	ACKER	04-2002

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 6-9 and 11-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Schweikard et al. (US 6,501,981).

Schweikard discloses an apparatus and a method for tracking and treatment of target region comprises:

- an MRI apparatus for generating MR images during an MR scan of the subject disposed within an examination region; (see col. 2, lines 10-48).
- an MRI localizer for receiving the image data from the MRI apparatus wherein the target is localized; (see col. 2, lines 10-48, lines 55-65 and Fig.2, 4 and 12).
- a reference marker localizer for non-invasively receiving reference data from a plurality of reference points disposed in proximity to the target wherein the reference points are localized; (see col. 2, lines 10-67, col. 3, line 66-col.4, line 11 and col. 6, lines 28-50). Internal markers and external

markers/sensors are reference points disposed in proximity to the target and these reference points non-invasively provide reference data to the apparatus that enable the apparatus to accurately determine the position of the target region. When position of the target is being track base on markers it is inherent the markers are localized.

- a tracking processor for receiving localized data from the MRI localizer wherein a relationship between the reference markers and the target region is generated; (see col. 2, lines 48-67 and col.4, line 50-col.5, line 27).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 5, 10 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schweikard et al. (US 6,501,981) in view of Acker et al. (US 6,374,132).

Schweikard discloses substantially all claim limitation set forth in claims 4, 7 and 12. However, Schweikard does not disclose an ultrasound ablator. Acker discloses an

ultrasound ablator use for medical procedure such as hyperthermia treatment of tissue (see abstract, col. 17, lines 8-43 and col. 13, lines 1-37).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Schweikard's apparatus to include an ultrasound ablator as taught by Acker because the ultrasound ablator allows the apparatus to perform hyperthermia treatment of tissue.

(10) Response to Argument

Addressing claims 1 and 6, appellants argue at pages 10-11 and page 14 of the brief that Schweikard does not disclose a reference marker localizer for non-invasively receiving reference data from a plurality of reference points disposed in proximity to the target, wherein the reference points are localized. Appellants' argument is not persuasive because Schweikard discloses a reference marker localizer for non-invasively receiving reference data from a plurality of reference points/markers disposed in proximity to the target, wherein the reference points are localized (see col. 2, lines 10-48, 55-57 and Fig. 8, element 180 is one of plurality of external sensors; the reference markers/points are the external sensors that transmit reference data to the reference marker localizer in order to determine the position of the external sensors non-invasively on the patient; examiner interprets target as the patient under examination). Further, appellants argue Schweikard does not disclose an MRI apparatus for generating MR

images during an MR scan of the subject and an MRI localizer for receiving image data from the MRI apparatus wherein the target is localized. Appellants' argument is not persuasive because Schweikard discloses an MRI apparatus for generating MR images during an MR scan of the subject and an MRI localizer for receiving image data from the MRI apparatus wherein the target is localized (see col. 2, lines 40-45 and col. 4, lines 15-24; Schweikard suggested using a variety of imaging modality such as MRI and magnetic localization/MRI localization to obtain images of the subject/patient and localized the target/patient using the images; using magnetic localization/mri localization to obtain position of the external sensors is the same as using an MRI localizer for receiving image data from the MRI apparatus wherein the target is localized). Appellants argues Schweikard does not disclose generating a relationship between the reference markers/points and the target region. Appellants' argument is not persuasive because Schweikard discloses generating a relationship between the reference markers/points and the target region (see col. 2, lines 10-48 and 55-65; the external sensors determine external motion during treatment and this is the same as a relationship between the reference markers/points and the target region; the position of the target region based on the positional data of the external markers/sensors is the same as relationship between the reference markers/points and the target region; reference markers/points are the external sensors).

Addressing claim 3, appellants argue at pages 11-12 of the brief that Schweikard does not discloses plurality of reference points to be defined by a plurality of external

markers disposed on the subject. Appellants' argument is not persuasive because Schweikard discloses plurality of reference points to be defined by a plurality of external markers disposed on the subject (see col. 2, lines 10-48 and 55-57; reference points are the external markers/sensors). Appellants' argue Schweikard does not disclose a treatment controller to control the interventional tool base on the reference marker data. Appellants' argument is not persuasive because Schweikard discloses a treatment controller to control the interventional tool base on the reference marker data (see col. 1, lines 19-26, col. 2, lines 49-65, Fig. 2, elements 30 and 32; the processor determine the position of the target region based on the reference marker data and control the x-ray beam generator (elements 30 and 32) so the beam could accurately hit the target; the processor is the treatment controller and the interventional tool is the x-ray beam generator). Appellants argue Schweikard determine the relationship between the internal and external markers instead of the relationship of the external markers to the target region. Appellants' argument is not persuasive because appellants' argument is not in the claim. The claim does not include internal and external markers. The claim does not include determine the relationship of the external markers to the target region. The claim only includes reference markers/points. Examiner interprets reference markers as external markers or both external and internal markers.

Addressing claim 4, appellants argue at pages 12 of the brief that Schweikard does not disclose a navigator processor. Appellants' argument is not persuasive because Schweikard discloses a navigator processor (see col. 2, lines 10-65 and col. 4,

lines 20-24; Schweikard discloses using variety of imaging modality such as MRI to monitor the position of the external sensors and using a processor to determine the motion of the target region base on the data from the sensors; the sensors and the processor is the navigator system; the processor is the navigator processor).

Addressing claim 5, appellants argue at pages 12-13 of the brief that Schweikard does not disclose interventional tool to be disposed within the examination region of an MRI apparatus. Appellants' argument is not persuasive because this is not in the claim. Claim 5 only claim the interventional tool comprises a focused ultrasound ablator disposed within the examination region. Further, claim 1 only claim an MRI apparatus for generating MR images during an MR scan of the subject disposed within an examination region. Schweikard discloses this limitation in col. 1, lines 19-26, col. 2, lines 10-65, col. 4, lines 15-20, Fig. 2, elements 30 and 32. The interventional device within the examination region is x-ray generator that transmits a beam to the patient. The patient/subject is in examination region and MRI apparatus scan the patient/subject to obtain 3d images. Appellants argue examiner fails to explain why or how one would be motivated to, much less how one would physically place the ultrasound device. Appellants' argument is not persuasive because the ultrasound ablator allows the apparatus to perform hyperthermia treatment of tissue. Schweikard provides motivation reason in col. 4, lines 1-10. Schweikard discloses that his apparatus and method has greater utility such as using with ultrasound ablator.

Addressing claims 8 and 13, appellants argues on pages 14-16 of the brief that Schweikard does not disclose determine relationship between external markers/points and the target region and external markers/points are being localized using video cameras. Appellants' argument is not persuasive because Schweikard discloses determine relationship between external markers/points and the target region and external markers being localized using video cameras (see col. 2, lines 10-45, 55-65, col. 12, lines 5-26, the infrared images use infrared cameras to localized external markers; x-ray and ultrasound cameras are used to localized external markers; infrared cameras, x-ray and ultrasound cameras are video cameras; the processor determine the motion and position of the external reference points and the target region based on the positional data of the external reference points which is the same as determine relationship between external markers/points and the target region).

Addressing claims 9 and 14, appellants argues on pages 15-17 of the brief that Schweikard does not disclose the reference points/markers on the diaphragm and the reference points/markers are localized by the navigator processor. Appellants' argument is not persuasive because Schweikard discloses reference points/markers on the diaphragm and the reference points/markers are localized by the navigator processor (see col. 2, lines 10-65, col. 4, lines 20-24, col. 5, lines 28-48, Schweikard discloses using variety of imaging modality such as MRI to monitor the position of the external sensors and using a processor to determine the motion of the target region base on the data from the sensors; the sensors and the processor is the navigator system; the

processor is the navigator processor; monitor the position of the external sensor is localized the external sensors; external sensors on the motion/breathing region or chest region is the same as the external sensors on the diaphragm).

Addressing claim 11, appellants argues on pages 15-16 of the brief that Schweikard does not disclose means for generating MRI and means for localizing the target region in the MR images; means for non-invasively localizing a plurality of reference points disposed in proximity to the target; a modeling means for generating a relationship between the reference points and the target region. Appellants' argument is addressed in the paragraphs above. The means for are the MRI apparatus that scan, obtain images and localize the reference points disposed in proximity to the target. The processor determine the motion and position of the reference points and the target region based on the positional data of the reference points which is the same as modeling means for generating a relationship between the reference points and the target region. Please look at the paragraph that addresses the argument of claims 1 and 6.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/HIEN NGUYEN/

Examiner, Art Unit 3777

Conferees:

/Tse Chen/
Supervisory Patent Examiner, Art Unit 3777

/Sue Lao/
Primary Examiner